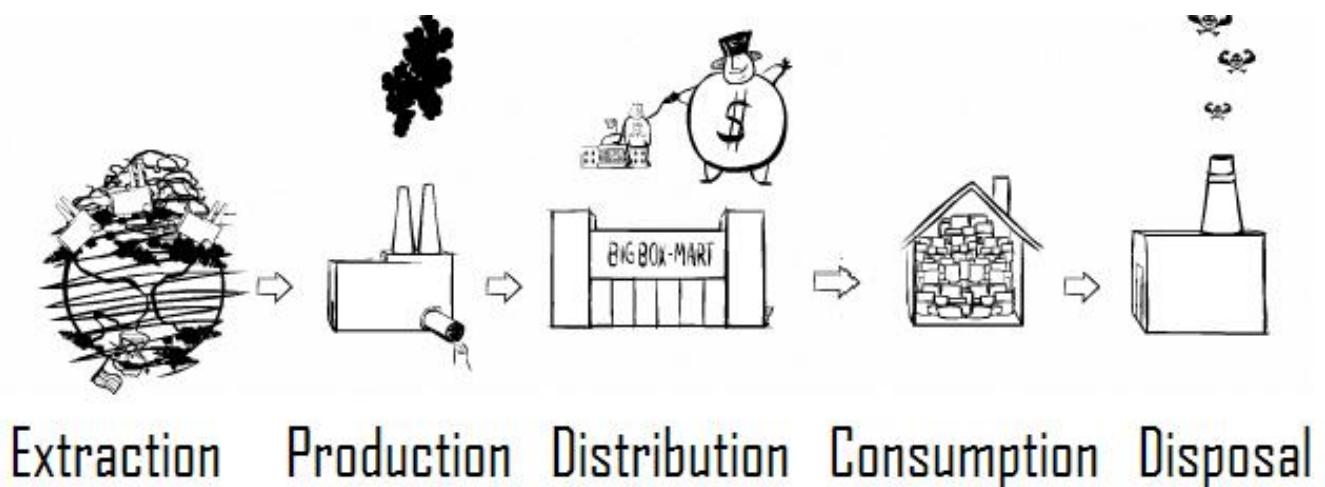


Life cycle analysis

Teacher content information

Sustainability means living within the limits of what our environment can provide and understanding the many interconnections between economy, society and our environment. In order to live in a sustainable way we need to understand that our planet has finite resources and in order for future generations to have a good quality of life we need to consider how we are using these resources.

A life cycle analysis involves making detailed measurements during the manufacturing of the product: from the mining of the raw materials used in its production and distribution, its use, possible re-use or recycling, and its eventual disposal. Life cycle analysis enables people to quantify how much energy and raw materials are used, and how much solid waste, liquid waste and gaseous waste is generated at each stage of the product's life.





The picture above shows the chain of production - extraction, production, distribution, consumption/use, and disposal. This is a linear system and because we live on a finite planet, this type of system can't go on for ever. Our demand and want for more 'stuff' puts more and more pressure on this unsustainable system. For more information watch ['The Story of Stuff'](#).

By making very simple changes in our purchases, we can help build a more sustainable future. Such changes include making purchases of high quality, durable products, reusing what we can, and recycling as much as possible. Being a 'cautious consumer' can help our environment more than most people ever realise. The majority of waste is generated during the manufacturing, processing, and distribution of a product. Moreover, air and water pollution also occurs during manufacturing and distribution of a product. Thus, by picking products that are durable, reusable, recyclable and not overpackaged and by buying locally made products whenever possible, we can make a direct impact towards protecting our environment, etc.

Lesson and Student Organisation

Tuning in activity

Read 'The Lorax' by Dr Seuss to your class. Discuss the life cycle of a 'Thneed' by thinking about each stage of the chain of production. What energy and natural resources are required for extraction, production, distribution, consumption, and disposal? Discuss the cause and effect of making Thneeds. Is the production of Thneeds sustainable?

Researching Life Cycles

Step 1: Ask your students what they consider when they buy something new. Do they decide to buy the product because of its price or because of a commercial they saw on TV? Have they considered where the product comes from or the environmental effects of that product?

Step 2: Divide the students up into groups of four or five students. Each group will investigate the life cycle of some simple every day items. They will explore the



resources used and the environmental impacts during extraction, production, distribution, consumption/use, and disposal. You should bring in the items that the students are investigating but ensure that you select items that are not too complex, otherwise students will find it difficult to trace the origins of all the various parts. Some suggested items include: fair trade soccer ball, tin of tomatoes, mobile phone, cotton T-shirt, plastic bag, and DVD. Get your students to complete their group research on the Student Worksheet.

Note: students may find it difficult to find information on some life cycle stages, if this is the case they can simply write information not available.

Step 3: Next, students are to design a way to communicate what they have learnt and convince people to make an informed decision when purchasing the item. They could create an advertisement, label for the product, PowerPoint presentation, podcast or a letter to government.

Teacher References

<http://www.epa.gov/osw/education/pdfs/life-soccer.pdf>

<http://www.epa.gov/osw/education/pdfs/life-cell.pdf>

<http://www.epa.gov/osw/education/pdfs/finalposter.pdf>